

[Exhaust Emission Control and Diagnostics]

Abstract of Disclosure

A diesel engine emission control system uses an upstream oxidation catalyst and a downstream SCR catalyst to reduce NO_x in a lean exhaust gas environment. The engine and upstream oxidation catalyst are configured to provide approximately a 1:1 ratio of NO to NO₂ entering the downstream catalyst. In this way, the downstream catalyst is insensitive to sulfur contamination, and also has improved overall catalyst NO_x conversion efficiency. Degradation of the system is determined when the ratio provided is no longer near the desired 1:1 ratio. This condition is detected using measurements of engine operating conditions such as from a NO_x sensor located downstream of the catalysts. Finally, control action to adjust an injected amount of reductant in the exhaust gas based on the actual NO to NO₂ ratio upstream of the SCR catalyst and downstream of the oxidation catalyst.

Figures